

# TEACHERS' PERSPECTIVES ON INNOVATION: TUTORSHIP AND VIDEOANNOTATION

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## Abstract

The use of digital video offers interesting opportunities in teacher training, particularly thanks to the possibilities provided by video annotation, whereby people can add and share comments and opinions on the same videos, even from different places.

This research study aims at examining teachers' perspectives on this technology, taking into account both their explicit evaluations and the emotional implications that might characterize their perception.

Different methods of using video annotation for training are compared, one based on the individual use as a form of personal reflection, another supported by various types of tutorship. The data were collected and analysed through an explicit evaluation, an indirect evaluation and shared interpretations in a focus group. It is pointed out that to make this technology fully operational it is important to work on the cultural and psychosocial aspects that control the emotional conditions that arise when one's teaching behaviour is observed and assessed.

KEYWORDS: videoannotation, tutorship, teacher training, microteaching.

## Introduction

Several authors now maintain that using video reviewing of teaching behaviour as a tool for encouraging a reflective approach among teachers is a useful and promising practice (Bryan & Recesso, 2006; Wright, 2008; Rich & Hannafin, 2009; Santagata & Angelici, 2010; Snoeyink, 2010). Furthermore, available meta-analyses show that teacher training programmes with hands-on experiences that include video recording of lessons and subsequent re-evaluation and discussion (microteaching) prove to be among the most effective methods, with ES ranging from 0,7 to 0,85 (Hattie, 2009).

Involving others in the reflexive process is very important. Being able to review one's own teaching behaviour, share and discuss viewpoints with tutors or experts, can create added potential for the development of teaching expertise (Knoll & Stigler, 1999; Jacobs, Kawanaka, & Stigler, 1999; Putnam & Borko, 2000; Wilson & Berne, 1999). Several projects, based on the use of video analysis, emphasize the potential of sharing and discussing with a peer group, as the MATH project (Lampert & Ball, 1998), or the MILE project (Goffree & Oonk, 1999), the Japanese Lesson Study (Fernandez, Cannon, & Chokshi 2003), the "video study groups" (Tochon, 1999), the "lesson study" (Lewis, Perry & Hurd, 2004), the "video Clubs" (Sherin & Han, 2004) or the "video cases for mathematics professional development" (Seago, 2004; Sherin, 2004).

Nonetheless, the conditions of interpersonal support that can best support the use of this technique and teachers' perspectives on the subject still have to be studied.

Technology offers potential, but it can also create critical situations related to its user-friendliness, implicit and explicit difficulties and the emotional implications related to its use, which can even get worse in an interpersonal context.

In literature on the spread and acceptance of technological innovations, it is commonly acknowledged that effective spread of innovations is not so much related to their actual characteristics, but rather to the idea perceived by the user adopting them (Moore & Benbasat, 1991). Rogers (1983) identifies 5 key characteristics in technological innovation which influence potential users to adopt them: relative advantage, that is, the extent to which the innovation is perceived as an improvement over previous systems, compatibility, which is the measure of how well the innovation aligns with the user's values, complexity, which relates to the difficulty of using the innovation, observability and trialability, meaning how visible the innovation's results are to others and the level at which the innovation can be tested before being adopted.

On similar lines, there have been other works, as for example Davis' Technology Acceptance Model (Davis, 1989) referring to the perceived ease-of-use and perceived utility, and the more recent formulations of technology acceptance models (e.g. Venkatesh, Morris, Davis, & Davis, 2003).

## Aim of the research

What is being studied here is the teachers' perspective regarding the possible use of innovative technology such as video annotation in their training. We are using the term *perspective* in a broad sense, including both explicit and implicit judgements. We will investigate whether teachers consider the use of video annotation as effectively feasible and sustainable over time, and if they do, whether for some reason they prefer a particular method rather than another, once it is introduced in an interpersonal tutoring context.

## Object of the research

We will consider the teachers' views on three different situations of computer mediated tutorship supported by video reviewing and video annotation: a friendly one (where the video annotations are carried out by a trusted expert chosen by the teacher himself, here defined as the "*mentor* situation", a community situation (where the video annotations are carried out by three colleagues randomly chosen from the school), here defined as the "*community* situation", and another one where they are carried out by an academic expert, here defined as the "*expert* situation". These situations will be compared to traditional *face-to-face* training and to purely *personal* use – without any tutorship– of video annotation.

On this basis the following hypotheses were formulated:

H1. Teachers reveal that they prefer the use of video annotation to support their training rather than *face to face* training;

H2. Teachers reveal that on the whole they prefer the use of video annotation supported by any type of tutoring rather than a totally personal one;

H3. Within the sphere of tutored video annotation, there are significant differences between the three possible types (mentor, peer community, expert) and the *community* solution is preferred.

Specifically, the community solution arouses high expectations in a context where the web is becoming more and more the hub for professional development, through shared experiences in communities of practice, and where even teachers have started documenting their class experiences on video clips (So, Pow, & Hung, 2009; Huppertz, Massler & Ploetzner, 2005; Rich & Hannafin, 2009).

## Methods and methodologies

### Study Design

Our research is based on an experimental longitudinal design method with repeated measures, in which teachers giving a lesson compare herself video annotation experience to situations where video annotations are carried out by a mentor, a community or an expert.

To study teachers' views on the use of video annotation we resorted to the literature on the adoption of technological innovations, which is essentially based on Rogers' (1983) and Davis' (1989) approach, and on this basis three dimensions were distinguished:

1. **utility**, in the sense of assessing the advantages and perceived utility in terms of skills development according to Davis (1989);
2. **ease-of-use**, which refers to perceived ease-of-use (Davis, 1989) and perceived level of user-friendliness (Rogers, 1983).
3. **appeal**, meaning a feeling with emotional implications related to desirability, serenity, engagement, and similar to the concept expressing the idea of a consistency between technology and one's own values, needs and experience (Rogers, 1983).

### Measure

These three dimensions have been observed from three points of view, through three different methods of data acquisition at different levels of individual and social awareness.

1. **Explicit evaluation** by using a Rating Scale (RS) with a range from 1 to 5 point Likert scale.
2. **Indirect evaluation (or Connotation)**, through the use of a Semantic Differential (SD) according to the procedure outlined by Osgood, Suci and Tannenbaum (1957), aimed at capturing attribution of meanings and feelings associated with the object being evaluated.
3. **Interpretation: using a focus group** (Bloor, Frankland, Thomas & Robson, 2002), aimed at exploring the experiences that justify the answers to the previous measures and identifying a socially shared interpretation of the implicit motivations.

Both the RS and the SD were created ad hoc for the relative dimensions in the research study. We proceeded to verify the hypothesized structure through factorial analysis of the main components, (eigenvalue over 1, varimax rotation) and to analyse the reliability level (Cronbach's alpha) of each extracted dimension.

The final RS version was made up of 12 items, 4 for each dimension, and its level of reliability Cronbach's alpha was more than .70 in all the applications:  $\alpha$  mean of utility = .84 (.02);  $\alpha$  mean of appeal = .74 (.05);  $\alpha$  mean of ease-of-use = .78 (= .03). The SD was made up of 24 items, 8 for each of the three key dimensions of the research study, and its level of reliability was more than .70 in all the applications ( $\alpha$  mean of utility = .77 (= .02);  $\alpha$  mean of appeal  $\alpha$  = .80 (= .04);  $\alpha$  mean of ease-of-use  $\alpha$  = .87 (= .05).

### *Sample*

The research study was carried out in two schools, which have been working together on innovative projects regarding education and teaching, in Quartu S. Elena, a Sardinian town in the Province of Cagliari (Italy).

On a total of 60 teachers, 13 voluntarily accepted to take part in the experiment as tutees, that is, they were ready to share their video recorded experience with other teachers, who, acting as tutors would share with them their video annotations.

The sample of 13 teachers was formed only by women,  $\frac{3}{4}$  of which are between the ages of 35 and 40, have 6 to 10 years teaching experience, a 5-year specialized degree and positive teacher training experience.

However, they are all only fairly familiar with technology, using it occasionally in the classroom and they had never used digital video before.

The classes chosen for the video recorded lessons are 1st to 3rd year Primary School (6 to 9-year-old children), with an average of about 20 children in each class ( $SD = 2$ ), in a low average cultural context and with at least one pupil in each class with special needs.

Some of the teachers participating as tutees also accepted to act as tutors (mentor or community member). However, the tutors were largely chosen outside the restricted sample of tutees.

### *Procedure*

The procedure can be summed up in three phases:

#### **1. Preliminary phase** (about 20 days):

A few meetings were held before the experiment to clarify the different roles of the different subjects involved and to prepare them for their participation in the experiment.

The actions in this phase were:

- administering the SD and the RS to have the teachers' evaluations regarding face-to-face professional training;
- defining a shared lesson plan and common goals so that tutors could express their comments on a common basis;
- choosing a trusted mentor for each tutee and assigning a group of three teachers, forming the review community, to each tutee.
- technological tests aimed at familiarizing with the video annotation system and organizing technical support for possible need during the experiment.

For simplicity purposes it was decided to use one video camera with a fixed shot on the teacher during her interaction with the class.

The lessons to be filmed was a 20-minute long dialogic lessons on a new topic pertinent to the school curriculum. It was also established and made clear that the tutors (mentor, community, expert) would also evaluate the video recorded lessons according the following criteria: communication clarity, cognitive appropriateness, capability to manage the classroom's climate.

A simple and intuitive online video annotation tool, VideoAnt (a web-based application developed by the University of Minnesota), was chosen to review and annotate the video (see website: <http://ant.umn.edu/>).

The role of the expert was carried out by one of the three authors. Not having participated directly in the field experience, the teachers did not know him personally.

#### **2. Experimental phase:** (15 days)

The teacher-researcher gave the lesson that was video recorded. A copy of the video lesson was addressed to the various subjects for their respective video annotation:

- a. the tutee for her own self video annotation;
- b. the mentor;
- c. the community;
- d. the expert.

All the subjects involved were asked to insert their own video annotations autonomously, without knowing those made by the others (with the exception of the community that worked together).

First the tutee reviewed and video annotated her own video right away and expressed her evaluation on this experience through the SD and RS tools.

At two-three day intervals the tutee received, the other video annotations from the mentor, the community and the expert in a randomized order.

In each case the tutee re-examined her own video, focusing her attention on the comments by the relative tutor. After each feedback experience he/she filled in the SD and RS tools.

### 3. Final phase: focus group (1 day)

This phase included the following actions:

- a. presentation of the quantitative data and resulting hypotheses to the experimental group (tutors and tutees);
- b. a discussion to explore meanings and interpretations;
- c. further discussion on the motivations and the resulting interpretative summary.

The procedure is summarized in the following figure. 1.

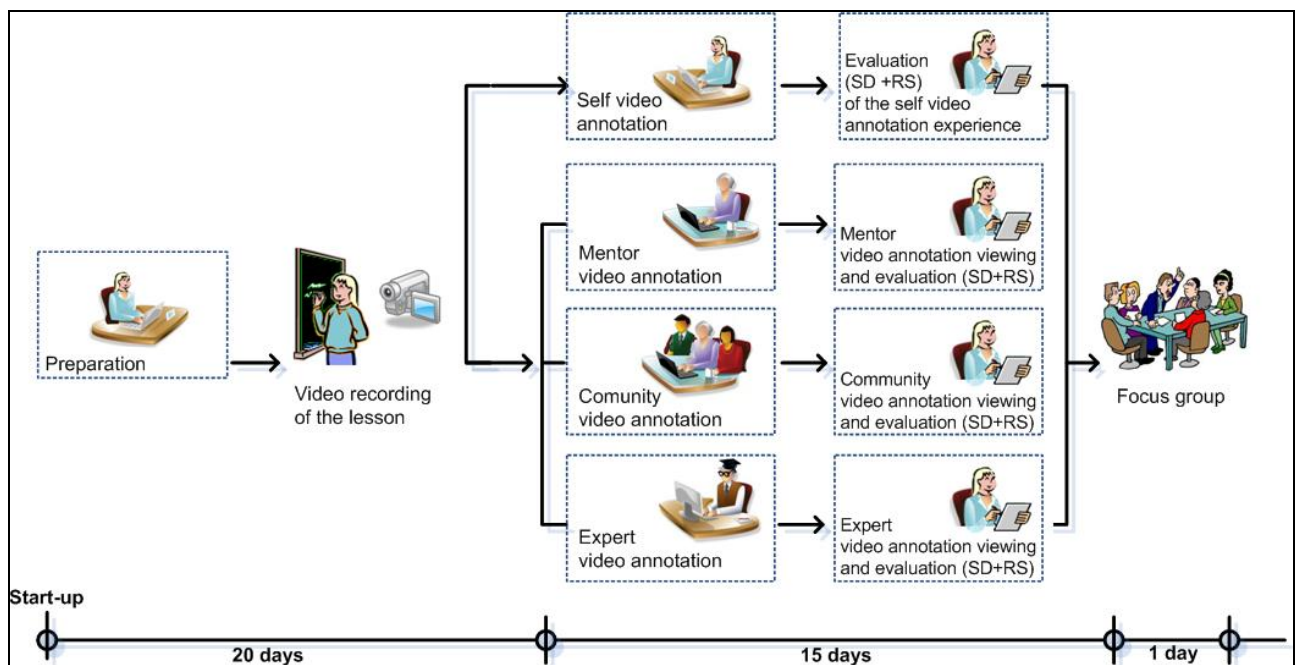


Fig. 1. Experiment chart

## Results of the research

### *Utility, appeal and ease-of-use levels attributed to the different types of training*

The first goal of our research aimed at having a clear idea of the teachers' point of view on the two general forms of experimented video annotation, self video annotation and tutored video annotation, in comparison to face to face training (H1) e (H2).

As mentioned above, to validate the hypotheses were conducted two assessment measures (explicit and indirect evaluation).

The distribution of the averages and standard deviations related to the measures used to survey the sample's resulting explicit evaluation (RS) shows in the utility dimension an opposite trend to the one in the other two. Utility increases as we go from face-to-face training to self video annotation to tutored video annotation, which has the highest values. On the contrary, appeal and ease-of-use follow an opposite trend with higher values in face-to-face training.

A repeated measures analysis of variance was carried out in order to verify the existence of significant differences in the registered average scores relative to the single dimensions in the various types of training.

**Table 1. Scores of ANOVA and comparisons between the average scores of the variables referring to the different types of training (explicit evaluation), variables considered, N = 13**

Variables of the training Explicit evaluation	Experimental situation			F	$\omega^2$
	Face to face training	Self video annotation	Tutored video annotation		
Utility	2.63 <sub>a</sub> (.64)	3.46 <sub>b</sub> (.76)	3.85 <sub>cb</sub> (.99)	10.146***	.46
Appeal	4.11 <sub>a</sub> (.82)	3.65 <sub>a</sub> (1.14)	3.04 <sub>b</sub> (1.14)	4.664*	.38
Easy to use	3.33 (.57)	3.10 (.72)	2.92 (.69)	3.032	.20

Note. \* =  $p < .05$ , \*\*\* =  $p < .001$ . Standard deviations appear in parentheses below means. Means with differing subscripts within rows are significantly different at the  $p < .05$  based on Bonferroni correction's post hoc paired comparisons.

As shown in table 1, with regards to the utility dimension, the Anova test proved to be significant,  $F(2, 10) = 10.146$ ,  $p = .001$ ,  $\omega^2 = .46$ , the following post-hoc tests, carried out with the Bonferroni correction of the significance level, revealed that there are no significant differences between the average scores when self and tutored video annotation are compared. On the other hand, as regards face-to-face training, teachers attribute a significantly higher level of utility to tutored video annotation ( $\Delta M = 1.21$   $p = .008$ ) and a slightly lower, but still significant level to self video annotation ( $\Delta M = .827$   $p = .031$ ).

The analysis of variance test regarding the appeal dimension was also significant,  $F(2, 10) = 4.664$   $p = .019$   $\omega^2 = .38$ , showing one single significant difference in the post-hoc Bonferroni correction tests between face-to-face training and tutored video annotation ( $\Delta M = 1.077$   $p = .005$ ) (tab. 3). If we analyse the items referring to the appeal measure (RS) more closely, it is interesting to note that subjects declare feeling more anxious and embarrassed in a tutored video annotation situation rather than in a face-to-face situation; the differences between these two items are quite significant in the ANOVA test results:  $\Delta M = .846$   $p = .03$  (anxiety);  $\Delta M = 1.308$   $p = .01$  (embarrassment).

The ANOVA test for attributed ease-of-use reveals no significant difference, even though data follow the appeal dimension trend, with a higher average in face-to-face training.

The measure of the connotation about the same kinds of training has led to the results in Table 2 that summarizes the descriptive data relative to the evaluation of the utility, appeal and ease-of-use dimensions through the SD for the three compared types of training.

**Table 2. Average and standard deviation of the variables referring to the different types of training (connotation), N = 13**

	Face-to-face Training		Self video annotation		Tutored video annotation	
	M	SD	M	SD	M	SD
Utility	5.74	.54	6.34	.35	6.02	1.32
Appeal	6.08	.97	5.92	.42	5.90	.99
Ease-of-use	5.23	.89	5.55	.87	5.28	1.16

The ANOVA analysis on these scores did not produce particular significant proof regarding hypotheses H1 and H2.

Even though significant thresholds are not reached, it is still interesting to observe how here self video annotation still gets higher points than tutored video annotation for all the three dimensions. Therefore, compared to the explicit evaluation (through RS), using a more indirect tool (SD) seems to increase positive judgements for self-evaluation, extended also to the utility dimension.

On the whole, these results only partially confirm the first research hypothesis (H1), which expected a preference for video annotation rather than face-to-face training: this hypothesis has been confirmed only as regards the utility dimension but not as regards appeal and ease-of-use.

The second hypothesis has not been confirmed (H2). There is no significant difference between tutored video annotation and self video annotation along the averages of the three dimensions. Contrary to what was expected, the descriptive data is more oriented towards self video annotation, if we exclude the greater utility attributed to tutored video annotation in the explicit evaluation, where the difference, as already mentioned, does not reach a significant level.

*Utility, appeal and ease-of-use of the different types of tutorship (mentor, community, expert)*

As regards tutored video annotation, the research study also aimed at analysing the perception of utility, appeal and ease-of-use of the three different forms of tutorship (mentor, community, expert), with a preliminary hypothesis of preference for the community (H3).

The table below shows the average data related to the utility, appeal and ease-of-use measures used to investigate the explicit evaluation (RS) in the three tutoring situations.

**Table 3. Scores of ANOVA and comparisons between the average scores of the variables referring to the different types of tutorship (explicit evaluation), N = 13**

Variables of the training Explicit evaluation	Experimental situation			F	$\omega^2$
	Mentor video annotation	Community video annotation	Expert video annotation		
Utility	3.85a (2.07)	2.96b (.96)	3.58ac (.90)	5.067*	.32
Appeal	3.79a (.72)	3.60a (.79)	3.77a (.71)	2.625	.18
Easy to use	3.42a (.68)	3.27a (.72)	3.70a (.57)	1.506	.11

Note. \* =  $p < .05$ , \*\*\* =  $p < .001$ . Standard deviations appear in parentheses below means. Means with differing subscripts within rows are significantly different at the  $p < .05$  based on Bonferroni correction's post hoc paired comparisons.

As can be observed in table 3, the average scores are prevalently in the medium-high range of the 1 to 5-point Likert scale used for the answers, thus outlining a positive perception of the observed variables in the three types of video annotation. Data are low only in the case of community supported video annotation, reaching the medium range, particularly in the utility and ease-of-use dimensions.

Even in this case, we verified the significance of the differences in the resulting averages, through the repeated measures analysis of variance.

The results reveal a significant difference between the utility attributed to expert video annotation and to community video annotation in favour of the expert ( $\Delta M = .615$ ,  $p = .04$ ). When the items that constitute the utility measure are analysed in detail, the community does not seem to be sufficiently strong when compared with expert video annotation as regards improving personal skills in classroom management ( $\Delta M = -.692$ ,  $p = .03$ ) and discovering one's own unconscious behaviour ( $\Delta M = -.615$ ,  $p = .04$ ).

The analysis of connotation (SD (tab.4) once again highlights low values related to the community video annotation experience without reaching a significant level. Again in this case, the ANOVA analysis did not produce particular significant proof, so we report only the descriptive data.

**Table 4. Averages and standard deviations of the variables referring to the different types of tutored video annotation (connotation) N=13**

	Mentor video annotation		Community video annotation		Expert video annotation	
	M	SD.	M	SD.	M	SD
Utility	6.03	1.14	5.80	1.58	6.21	1.23
Appeal	6.01	.73	5.57	1.41	6.10	.83
Ease-of-use	5.27	.92	5.23	1.59	5.39	.96

The values are however in line with what emerged in the explicit evaluation highlighting an overall more positive perception of expert video annotation, followed by mentor video annotation and finally by community video annotation.

Therefore, hypothesis H3 has not been confirmed: data reveal a preference for the expert with a statistically significant difference when compared to the community in the utility dimension.

Mentor and expert tutorship both appear to be positively evaluated and connoted. In particular, the averages of the appeal and utility dimensions are within the RS's medium high range (3 – 4 of the 5-point Likert scale) and within the SD's high range (6 – 7 of the 7-point Likert scale). There remains an uncertain preference for one or the other form of tutorship without significant difference between the two.

*The focus group: tutored or non-tutored video annotation as a teaching method when compared to face-to-face training (H1, H2)*

In order to further understand the attitudes and preferences of the 13 teachers who took part in the research study, a focus group aimed at interpreting the results of the statistical survey was carried out according to the practices highlighted by Bloor, Frankland, Thomas and Robson (2002), and the methods illustrated in psycho-social literature (Kinzinger, 1994; Waterton & Wynne, 1999).

Data were indexed, archived and analysed manually using the analytic induction method to try and obtain feedback on the quantitative results and the hypotheses associated to them. First, the quantitative results were presented and a discussion with the participants, aimed at bringing out the meaning, followed. The observations that emerged were gathered manually by the moderator and the assistant and recorded at the same time. The summary of the discussion was presented and further expanded with the participants; subsequently the moderator and the assistant listened to the whole recording once again and formulated another summary (Bloor, Frankland, Thomas & Robson, 2002, Stewart, Shamdasani, & Rook, 2007).

Such an analysis helped to collect some fundamental representations related to the video annotation method itself and the evaluation of the different forms of experimented tutorship, which will be presented in the following paragraphs.

The analysed material shows that the video annotation experience was, on the whole, evaluated by all the teachers involved as positive and useful, as can be inferred from the following statement given as an example:

*“Actually, I experienced all four situations positively, starting with self video annotation, because watching myself was a significant experience,... it especially made me realize that in many respects I see myself differently than how I expect myself to be when I'm teaching children”*

The teachers agreed in defining video annotation a “powerful” rather than a useful technique, emphasizing its direct references to teaching behaviour and specific aspects related to lesson planning and interaction with the class. The following statement is emblematic of this shared meaning:

*“...watching myself was useful to evaluate every part of the lesson explanation, it was powerful because it acted on specific aspects and now I can judge whether I should change some attitudes and where”.*

Only four of the teachers in the sample declared that they absolutely preferred video annotation to face-to-face training. The others, however, admitted a certain degree of resistance and scarce trust in this method due to lack of knowledge and familiarity with such technologies which do not form part of their personal training experience.

*"...I wasn't really myself, because I was afraid...I have to be honest, I wasn't "real", because it was a totally new experience, we should first get used to having this tool in class and use it a few times without having anyone telling us anything about our work..."*

Moreover, when compared to face-to-face training, video annotation reduces its utility, that is, it is less "important" in a teacher's professional curriculum. This renders it even less appealing. On the whole, there is substantial agreement on the fact that this practice can be regarded as a mere integration to face-to-face training, as expressed in this statement:

*"Video annotation is effective, but it cannot substitute traditional training, it cannot be the basis of the curriculum...it is alright as an integration, traditional training will certainly profit if it is supported by this type of training..."*

Most of the teachers declare they consider using tutored video annotation as a less easy and sustainable training method than both face-to-face training and self video annotation.

Two participants maintain that the same benefits of tutored video annotation can be achieved in a more economic and spontaneous way by further fostering daily and informal sharing of teaching activities between colleagues. One of them states:

*"I seem to gather, from what's being said, that face-to-face training, at any rate, does not involve the reflection and questioning that this new situation involves. I do not completely agree with this idea, because teachers already call themselves into question and look around for new ideas on a daily basis, this just needs to be further encouraged".*

The problems attributed to tutored video annotation are partly the same as those typically attributed to training in general, as for example, lack of time; other problems are however specific. The difficulties mentioned are logistic problems related to lack of classrooms normally equipped for video recording, the data's limited reliability due to the recordings constraints and the scarce spontaneity of the situation (teachers and students feel inhibited because of the video camera).

#### *The focus group: Different types of tutorship supporting video annotation (H3)*

Consistent with the quantitative data, community tutorship is confirmed as the least suitable out of the three types of tutorship compared in the experiment. Most of the teachers perceived the community's support in video annotation as not focused, not very coherent, not important.

*"I didn't like the community very much because it wasn't very coherent and also because a colleague had to be judged...."*

Only three teachers confirmed the potential of this form of tutorship, highlighting the opportunity for peers to exchange views as a useful form of reflection and openness to different points of views. They added that within a more prepared context:

*"Maybe even the community could work out if observation criteria were better shared"*

The teachers' evaluations of the opportunities offered by external observers reveal a clear split in their opinions giving rise to two different lines of thought. About half the teachers preferred mentor tutorship, because the mentor is a privileged witness of the teacher-tutee's actual competence and also the most qualified in the specific context.

*"....knowing the tutee is very important, because sometimes the recording gives you a distorted picture of reality. If you know the person you can evaluate him/her keeping in mind his/her personality, thus rendering the use of video annotation with a mentor more sustainable. In fact, it helps if whoever is observing knows the pupils well, knows what goes on in the class and whether there are students with problems.... experts could interpret the context wrongly"*

The other half support the expert as tutor for exactly the opposite reason, that is, precisely because he/she is a complete stranger to the specific context, his/her evaluation has a more significant and enriched value. Moreover, not directly knowing the tutee renders his/her contribution even more valid because it is objective and unbiased.

*".... in mentor tutored video annotation we tend to think that evaluations are driven by the fact that the mentor knows us, it's more confidential, but the very fact that he does not know me at all and he's a teacher training expert renders his evaluation more unbiased, and so I value and listen more to what he says and consequently I reflect more. If we had to make a scale of preferences, this would be the most important type"*



### *Focus Group: Additional elements*

From the observed and analysed interactions two more important variables emerge: the emotional element experienced by tutees and the tutors' analysis and communication skills.

Most teachers expressed how their experience was emotionally conditioned by the awareness that they were being assessed; four teachers declared feeling anxiety, embarrassment, fear and difficulty, two admitted being conditioned by the evaluation given by the tutor (positive vs. negative feedback) when expressing their own evaluation on the procedure being tested, as can be seen in the following statement:

*"It was a difficult experience due to the fears everybody, including myself, has of being judged....thinking retrospectively I realize that every time I found an annotation I didn't like, the first impact was really strong.....because everybody seeks approval by others, at first I perceived the comments that caught me unprepared slightly hostile".*

Even the tutors' transversal skills in expressing their feedback had an important role from the teachers' perspective. About half of them emphasized the importance of these personal skills also in view of the already mentioned lack of a shared evaluation system and code for the whole process.

Mentor and expert tutorship was particularly appreciated, because irrespective of the contents, more challenging language and communication forms were used than in the peer community tutorship. The following observations are an example of these elements:

*"I think that mentors and community colleagues should be trained, because even though this was an experiment, a lack of basic analysis and communication skills could be felt among tutors.*

After reflecting on the barriers and critical elements mentioned above, at the end of the focus group discussion, the teachers were asked to sum up the aspects that would contribute to increase the utility, appeal and ease-of-use of video annotation.

They agreed on:

- sharing and negotiating observation criteria: as emphasized above, according to the teachers, the inadequate knowledge of what to be evaluated on and what to evaluate increased uncertainty and anxiety in facing external feedback;
- a shared definition of the lesson goals and the tutor's knowledge of the class (in any form): lack of common goals and not knowing the context of the class is a significant critical factor;
- specific training on tutorship skills: specific communication skills, related also to the medium used, are fundamental to be a tutor.

### **Conclusions**

The resulting preference for video annotation when compared to face-to-face training as regards utility, in the sense of being able to influence teachers' operative behaviour, confirms what is found in literature on video analysis in general (Santagata, 2005) and in more specific literature on the effectiveness of video annotation (Bryan & Recesso, 2006): teachers appreciate the technical affordance of video annotation whereby comments can be inserted at the particular moment on the video and its strength.

The finding that teachers are more willing to receive feedback and to interact with external experts rather than share with peers can be interpreted as an encouraging signal for future experiments in which teaching behaviour in class can be also followed and supported by external specialized centres.

If, to a large extent, interaction with external tutor-observers is regarded as useful and powerful, the disposition to adopt it seems nonetheless conditioned by the perception of the specific emotional risks inherent in a mediated communication system.

Several data in the research study point to this conclusion: greater appeal and ease-of-use attributed to face-to-face training, a non clear-cut preference for tutored video annotation rather than self video annotation, considerable appreciation of mentor tutorship, as well as the declarations collected in the focus group discussion, all reveal concern more generally related to defending self-esteem and to the risk of exposure to external judgement, in line with classical theories on anxiety dynamics and defence mechanisms when judged by others (Sullivan, 1970; Rogers, 1951) .

The specific technological setting consisting of asynchronous and written messages that are not instantly negotiable, with not very clear shared rules might have rendered the management of these dynamics even more difficult, increasing anxiety, an aspect that is found in computer mediated communication (Harasim, 1990; Tu, 2000; Lobry de Bruyn, 2004).

The acknowledgement of utility attributed to video annotation, added to the preference for self video annotation (and partly also for mentor video annotation) could be explained as an attempt to find a

compromise between two opposing requirements, on one hand that of acknowledging the stimulating nature of technology, and on the other that of mitigating the risks deriving from exposing one's teaching behaviour publicly. Such a practice is not totally accepted culturally, because it is perceived as a source of risk for one's personal self-esteem.

The result indicating that, contrary to the proposed hypothesis (H3), community tutorship seems to be the less preferable situation for teachers, calls for greater caution towards trends and practices that are popular nowadays. As commonly known, with the evolution of Web 2.0, emphasis on participation, sharing and collaborative knowledge building among online professional communities is becoming a growing trend and even literature on video analysis highlights the utility and effectiveness of community discussion and sharing (Huppertz, Massler & Ploetzner, 2005; Pea & Lindgren, 2008; Rich & Hannafin, 2009).

However, there are also scholars who have already pointed out possible issues, for example, those related to the development of negative feelings when teachers from the same community might not find, within their group of colleagues, effective teaching examples or effective alternative methods to their usual personal behaviours (Santagata, 2005).

Moreover, collaborative use of technology is more complex, and leads to greater expenditure of time and energy, as already pointed out by Krammer et al. (2006).

Summarizing, this research study intended to study the teachers' perspective on a technological innovation which use video annotation in training within a tutorship context.

Three hypotheses were formulated: teachers prefer the use of video annotation to support their training rather than *face to face* training (H1); teachers prefer the use of video annotation supported by any type of tutoring rather than a totally personal one (H2); within the sphere of tutored video annotation teacher prefer the community of colleagues solution (H3).

The first research hypothesis has been confirmed only as regards the utility; video annotation is substantially perceived as more useful than face-to-face training because of its more powerful impact on teaching performance but less appealing and less easy to use in the teachers' everyday practice. The second hypothesis has not been confirmed: there is no significant difference between tutored video annotation and self video annotation. Also the third hypothesis has not been confirmed; out of the three hypothesized types of tutorship considered in the experiment (trusted mentor, community of colleagues, external expert), the one represented by the community of colleagues turned out to be the least desirable. This result raises doubts about the transferability of this practice to online professional community contexts, despite the increasing trend in this field within the Web 2.0 philosophy.

The overall data reveals the presence of mechanisms aimed at safeguarding personal self-esteem and at reducing exposure personal risks. The teachers explicitly acknowledge the importance of technological innovation and are ready to accept forms of remote observation and interaction with external expert tutors, but generally they express their concern about comments received by colleagues and prefer not to expose their teaching behaviour to an open audience.

In the technological innovation process, apart from technological and logistic problems, cultural and psychological-emotional difficulties leading to the perception of shared experiences as a risk for one's self-esteem, which, in conditions of remote interaction can assume new connotations, also arise. Further studies are required to better understand how such situations can be tackled and managed.

#### *Limitations, future research and implication for teachers*

The small size of the sample and some of its particular characteristics constitute the main limitations of this research study. Moreover, the low level of teachers' competence in using video might have conditioned the understanding of the variables under consideration. Previous research studies showed that teachers with little or no experience in observing their own or other people's videos tend not to gather much data or ideas by viewing the class video (Atkins, 1998, Friel & Carboni, 2000; Krajcik et al., 1996; Roasen, Schram, & Herbel-Eisenmann, 2002).

On the other hand, teachers with past experience in video analysis can benefit better from training experiences using video (Santagata & Angelici, 2010) and can consequently appreciate them better and deem them not only useful, but also easy-to-use. Moreover, familiarity with such tools could have probably increased the procedure's appeal level.

In our case, quite enough attention was given to the preliminary sharing of lesson goals without an analytical clarification of the criteria to be used in the evaluations (these were indicated in general terms). This aspect has definitely influenced the perception of low appeal in tutored video annotation, increasing the cause of anxiety, particularly towards *community* tutorship.

Further research is necessary to find out what would happen in cases where tutored video annotation supported by the community were carried out in different, more advanced contexts, after long preparation and where subjects were more familiar with the technology and a common, more detailed evaluation system of teaching behaviour had been defined and shared.

Other studies should focus on computer mediated communication and on communication skills that e-tutors should develop in order to be able to reduce anxiety factors characteristic of this type of interaction. Other factors to be investigated regard effective initiatives that schools can undertake to change the cultural framework and psychological defence mechanisms that occur when the observation of one's professional behaviour is perceived as a possible risk factor for one's self-esteem.

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## PERSPECTIVES DES ENSEIGNANTS SUR L'INNOVATION: TUTORSHIP ET VIDEO ANNOTATION

**P. Picci, A. Calvani, G. Bonaiuti**

### Summary (Résumé)

L'emploi des vidéos dans le tuteurage pour améliorer le comportement didactique des enseignants a une longue tradition qui s'est enrichie ces dernières années de nouvelles possibilités offertes par les vidéos digitales.

À la lumière de récentes études comparatives, il résulte en effet, que les pratiques de laboratoire intégrées par le micro-enseignement pour le développement de la réflexivité des enseignants, sont celles qui obtiennent la plus grande efficacité (Hattie, 2009).

L'avènement des vidéos digitales permet aujourd'hui de rendre plus amical et partageable ce type de méthodologie, surtout pour la possibilité offerte par la vidéo annotation à plusieurs sujets d'ajouter, à distance aussi, des opinions et des commentaires personnels en correspondance de différents moments ou parties d'une même vidéo.

Il reste ouvert, néanmoins, le problème de l'acceptation de cette technique par les enseignants dans une logique d'apprentissage et de développement continus: comment les enseignants évaluent-ils le processus de la révision des vidéos par la vidéo annotation par rapport à une formation de type traditionnel? Quel est, à leur avis, le mode d'emploi le plus efficace, soutenable et attrayant?

Ce travail examine le point de vue des enseignants à l'égard de cette technologie, employée comme forme d'évaluation personnelle d'un côté, et dans des contextes différemment supportés par le tutorship de l'autre.

Les modalités examinées sont les suivantes:

- 1) autoréflexion personnelle;
- 2) expérience avec l'aide d'un mentor de confiance;
- 3) expérience avec l'aide d'une communauté de collègues;
- 4) expérience avec l'aide d'un expert du monde académique.

La recherche a concerné deux écoles primaires de l'Italie du Centre avec la participation de 13 enseignants sur un total de 60. L'échantillon est constitué de femmes ayant entre 6 et 10 ans d'enseignement, maîtrise, une bonne expérience pédagogique, mais une modeste formation technologique, surtout pour l'exploitation des vidéos digitales.

La méthodologie utilisée est de type mixte (qualitative et quantitative).

Les données sont obtenues grâce à une évaluation explicite de l'expérience de la vidéo annotation (Rating scale sur l'échelle Likert), une évaluation indirecte (Différentielle sémantique) et des interprétations partagées par l'intermédiaire d'un focus groupe.

Pour l'analyse des données on a utilisé la statistique descriptive et inférencielle intégrée et complétée par l'analyse (interprétation) des résultats quantitatifs grâce à un focus groupe final.

Les données mettent en évidence que les enseignants considèrent la vidéo annotation, tout compte fait, plus utile que la formation traditionnelle mais, à l'opposé, moins attrayante et moins facile à utiliser dans la pratique quotidienne.

En général l'utilisation personnelle est préférée à une utilisation supportée par tutorship, tandis que, parmi les différentes typologies de tutorship (mentor, communauté, expert), l'attitude plus critique s'adresse à l'emploi de la vidéo annotation dans un contexte de communauté entre égaux; au contraire, on note un grand intérêt pour la solution représentée par un mentor bien connu.

Dans l'ensemble, les résultats obtenus mettent en évidence comment les enseignants reconnaissent l'efficacité de la vidéo annotation, mais aussi certains éléments critiques concernant les aspects émotifs liés à l'anxiété d'être exposés à une évaluation faite par des sujets externes, facteurs dont les prochaines applications devront tenir compte.

Pour une future mise en régime de ces approches dans la formation des enseignants, on souligne l'importance d'intervenir, non seulement pour améliorer leur formation technologique, mais aussi à l'égard des aspects culturels et émotionnels.